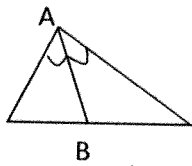
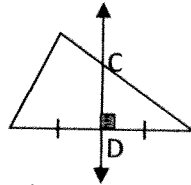


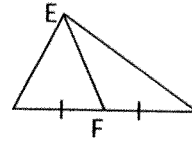
1. Identify each segment as a median, altitude, perpendicular bisector or angle bisector.



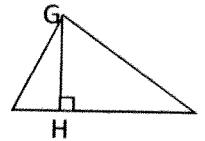
angle bisector



perpendicular bisector

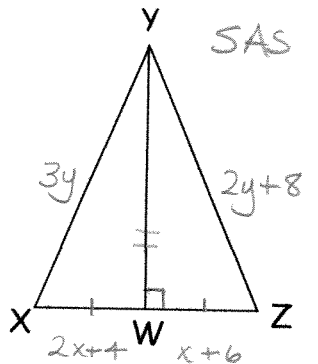


median



altitude

2. If \overline{YW} is the \perp bisector of \overline{XZ} , $XW = 2x + 4$, $WZ = x + 6$, $XY = 3y$, and $YZ = 2y + 8$, then find x and y .



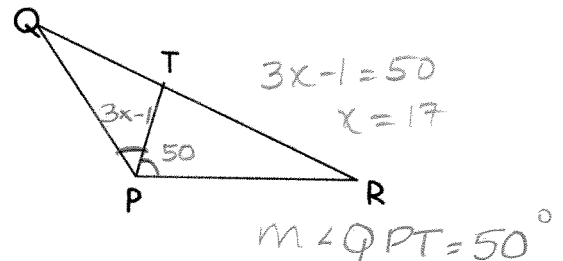
$$2x + 4 = x + 6$$

$$x = 2$$

$$3y = 2y + 8$$

$$y = 8$$

3. If \overline{PT} is the angle bisector of $\angle QPR$, $m\angle QPT = 3x - 1$ and $m\angle QPR = 100$, then find x and $m\angle QPT$.

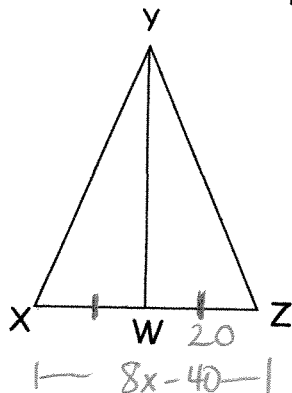


$$3x - 1 = 50$$

$$x = 17$$

$$m\angle QPT = 50^\circ$$

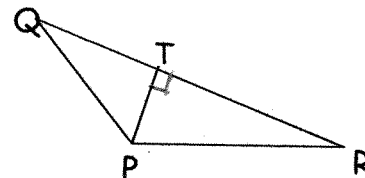
4. If \overline{YW} is the median of \overline{XZ} , $XZ = 8x - 40$ and $WZ = 20$, then find x .



$$8x - 40 = 40$$

$$x = 10$$

5. If \overline{PT} is an altitude of $\triangle QPR$, $m\angle PTR = 3x + 15$, then find x .



$$3x + 15 = 90$$

$$x = 25$$

6.

Use the Exterior Angle Inequality Theorem to list all of the angles that satisfy the stated condition.

measures less than $m\angle 1$

2, 3, 4, 5, 7, 8

measures less than $m\angle 9$

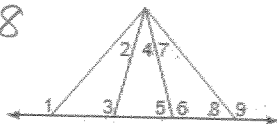
2, 4, 6, 7

measures greater than $m\angle 5$

1, 3

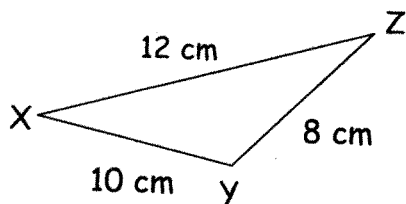
measures greater than $m\angle 8$

1, 3, 5



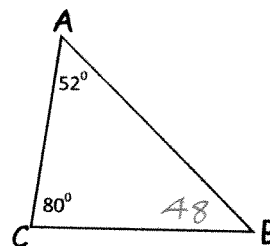
7. The largest angle is $\angle Y$.

The smallest angle is $\angle X$.



8. The shortest side is \overline{AC} .

The longest side is \overline{AB} .



Are these sides of a triangle?

9. 1, 2, and 3

NO

10. 7.5, 4.5, and 3.2

YES

11. 5.5, 3.75, 9.25

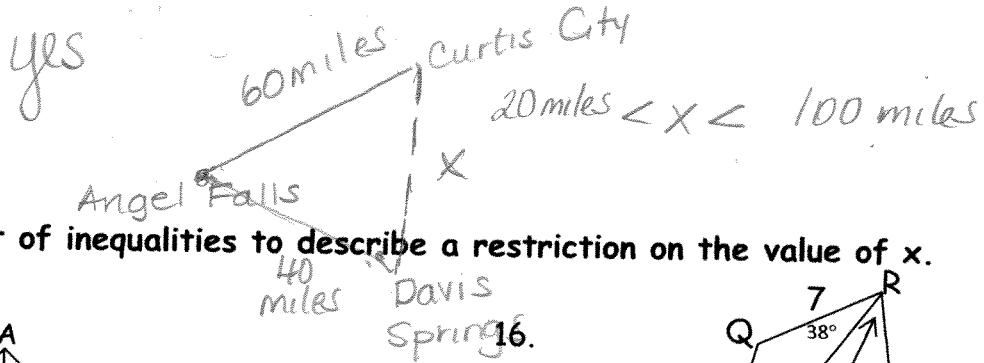
NO

Find the possible measures for the 3rd side of a triangle when the 2 sides are given.

12. 2, 3 $1 < x < 5$

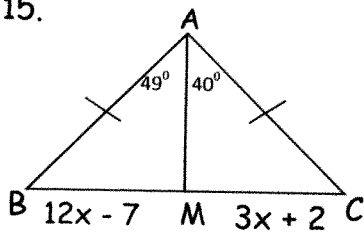
13. 8, 10 $2 < x < 18$

14. Curtis City is 60 miles NE of Angel Falls. Davis Springs is 40 miles SE of Angel Falls. Is it possible that Curtis City and Davis Springs are less than 100 miles apart? Justify your answer.



Write a set of inequalities to describe a restriction on the value of x .

15.

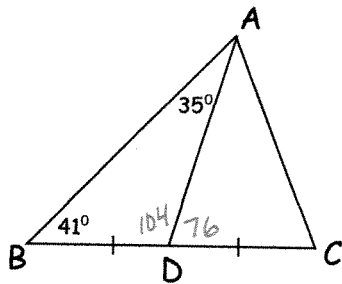


$$12x - 7 > 3x + 2$$

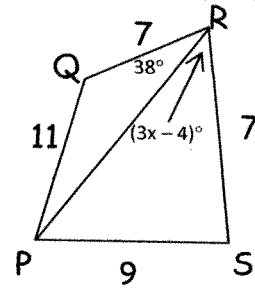
$$9x > 9$$

$$x > 1$$

17. $AB < AC$



16.



$$3x - 4 < 38$$

$$3x < 42$$

$$x < 14$$